

**GAME CART/ TREE STAND KIT****TECHNICAL FIELD**

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The present invention relates to a game cart kit, and more particularly to a game cart kit adaptable to fit a wide variety of tree stands or ladders.

**BACKGROUND OF THE INVENTION**

10 Hunting is a very popular sport throughout the United States and the world. Generally, those participating in this sport are required to transport a fair amount of gear from one point to another, often over rugged terrain. Hunters may opt to either carry the gear in a backpack, or haul said gear on what is known in the field as a game cart. Additionally, a game cart is typically required for transporting game animals from the 15 field, back to their car/vehicle.

Furthermore, a typical method of hunting requires a hunter to choose a relatively isolated location in the woods, and quietly wait in said location for game. The hunter may utilize a tree stand to climb a tree and wait for the game. A tree stand is advantageous because it offers the hunter a higher vantage point from which to view the field, and 20 having the hunter elevated above the ground prohibits the deer from picking up the hunter's scent. Additionally, because the hunter may be required to wait in such a position for a prolonged period of time, a seat is also part of the tree stand. While typically,

transporting tree stands from one place to another is difficult, tree stands that are easily disassembled have been developed.

Currently, several combination tree stand and game carts are known. An example of such a device is disclosed in Combination Tree Stand And Game CART, described in 5 U.S. Patent 6,516,919. The device provides a platform having a frame with two sets of parallel frame members forming a generally rectangular shape. The frame has cross braces and a pair of wheel brackets, one on each side of the frame, for pivotally connecting leg members to the frame. Additionally, the leg members have a wheel axle extending there between. While the device provides both a tree stand and a cart, the 10 device is not adaptable to accept a wide variety of tree stands, and the operator is limited to the tree as provided, because the wheel brackets are fixedly mounted to the ladder frame.

An example of an adaptable game cart is disclosed in Versatile Portable Cart, described in U.S. Patent 6,561,529. The device discloses axle members received within 15 each hole, of each lower portion of each vertical strut. To accommodate frames or cargo of varying widths, the distance between vertical struts can be varied along the axle length by loosening and tightening the tightening member and moving vertical struts laterally apart or towards each other along axle members. A one-piece axle may be used, as well as a pair of axle members, held in opposite axial orientation by straight rigid axle 20 connector. Because of the axle configuration required on this device, the operator is limited by both axle and straight rigid axle connector length when attaching the struts to the frames to be hauled.

Additionally, because of the distances that need to be traversed it is important that a cart be adaptable to be hauled by an ATV. Therefore it is important that a game cart further comprise a tow bar, so that it may be attached to an ATV, and hauled over rugged terrain as needed.

5 Carts having tow bars are known. One such example is disclosed in the Versatile Portable Cart, described in U.S. Patent 6,561,529. The example illustrated discloses a cart adapted to be attached to a bicycle. Further disclosed is a bicycle seat-stem compression clamp, formed of a body portion, and plate, fastened by screws. The device has a bore angled so that the clamp remains perpendicular when installed on a typical bicycle seat-stem. While the aforementioned device serves to attach a cart to a bicycle, it requires  
10 many components, and a fair amount of assembly.

Therefore, what is needed in the art is a kit that will convert a wide variety of readily available ladders or tree stands in to carts, suitable for transporting game or any other suitable items.

15 Furthermore, what is needed in the art is kit for converting such wide variety of ladders or tree stands into carts, having a tow bar capable of attaching to an ATV or similar device.

## **SUMMARY OF THE INVENTION**

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In order to overcome the above stated problems, the present invention provides a combination tree stand/game cart kit that converts a wide variety of tree stands into game carts. Furthermore, the tree stand/game cart kit of the present invention comprises a pair

of bracket assemblies wherein the bracket assemblies further comprise a bracket portion, an axle segment, and a wheel. Still furthermore, the tree stand/game cart kit of the present invention comprises a tow bar assembly. The tow bar assembly further comprises a pair of brackets for attaching to a wide variety of ladders, or tree stands. Still furthermore, the 5 tow bar assembly of the present invention comprises a pair of tow bar clamps for further securing the tow bar assembly to the ladder or tree stand, and a tow opening to allow the tow bar to be attached to a vehicle, such as, for example, an ATV.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

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The above-mentioned and other features and advantages of this invention, and the manner of attaining them, will become appreciated and be more readily understood by reference to the following detailed description of one embodiment of the invention in conjunction with the accompanying drawings, wherein:

15 **Fig. 1** is an isometric view of the game cart kit bracket of the present invention.

**Fig. 2** is a bottom view of the game cart kit bracket of the present invention, wheel and axle assembly;

**Fig. 3** is a side view of the game cart kit bracket of the present invention attached to wheel and axle assembly

20 **Fig. 4** is an isometric view of the clamp of the present invention

**Fig. 5** is a top view of the tow bar assembly and bracket assembly attached to a plurality of ladder segments.

**Figs. 6a and 6b** are respective top and bottom views of the tow bar assembly of the present invention.

**Fig. 7** is a side view of the tow bar assembly and bracket assembly attached to a plurality of ladder segments.

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## **DETAILED DESCRIPTION OF THE INVENTION**

Referring to **Fig. 1**, an isometric view of the game cart bracket assembly 10 of the 10 present is shown. The bracket assembly 10 is formed from a single piece of sheet metal, however any other suitable type of material may be used. The bracket further comprises a plurality of wall members extending upward therefrom. The wall members of the bracket 10 further comprise a peripheral wall member 11 and a pair of central wall members 13 and 14 respectively. The peripheral wall member 11 extends upward, 15 substantially perpendicular to the base member 12, and said pair of central wall members 13 and 14 extend upward, substantially perpendicular to said base member 12. Furthermore, the peripheral wall member 11 is substantially parallel to each of the central wall members 13 and 14, and is separated from each of the central wall members 13 and 14 by a distance 25, wherein said distance 25 is a sufficient distance to adequately allow 20 the ladder upright segments of a variety of standard tree stands to fit there between. Furthermore, the distance 24 between said the central wall members 13 and 14, is a sufficient distance to allow a wide variety of rungs to fit there between.

Referring now to **Fig. 2** and **Fig. 3**, a bottom view of the bracket assembly **10**, and the assembled bracket **10** and wheel assembly **23** are shown. The bottom surface **20** of the bracket assembly **10** further comprises an axle segment **19** fixedly attached thereto. The axle segment **19** may be fixedly attached to the bottom surface **20** of the bracket assembly **10** by any suitable means, such as, for example welding. The axle segment further comprises an outer portion **24** for engaging a wheel assembly **23**. The outer portion **24** of the axle segment **19** further comprises a pair of bores **21** and **22**. The bores **21** and **22** are each adapted to receive a cotter key **25**. The cotter key **25** is inserted into the bores **21** and **22** thereby providing a stop or a means for impeding the wheel assembly **23** from moving along said axle. While the preferred embodiment of the present particularly utilizes cotter keys **25** for this function, any suitable apparatus for providing a stop on the axle segment **19** may be used.

Referring again to **Fig.3**, the assembled bracket and wheel assembly is shown. The apparatus comprises the bracket with axle segment and the wheel, the cotter keys **25** and a pair of washers **26**. In order to assemble the kit a cotter key is fastened through the bore **22** on the axle segment **19**. Once the cotter key is in place a first washer is inserted on the axle segment thereby providing a first stop. Once the cotter key **25** and first washer is in place to form the first stop, the wheel assembly **23** is inserted on the axle segment. With the wheel assembly inserted on the axle segment and against the first stop, the second washer is inserted on the axle segment and should be moved into communication with the wheel assembly. Finally, the second cotter key **25** is fastened into the outer bore **21** to thereby provide a second stop wherein the wheel assembly **23** may rotate about the axle segment **19**, however movement along the axle segment **19** is

prohibited by the first and second stop. Generally, in order to form a cart from a tree stand or ladder, a pair of the aforementioned bracket and wheel assemblies are attached to the tree stand, or ladder at opposing sides.

Referring again to **Fig.1**, the bracket assembly **10** further comprises a peripheral wall member **11** which extends upward, substantially perpendicular to the base member **12**, and said pair of central wall members **13** and **14** each have a plurality of bores. The peripheral wall member **11** comprises a first group of bores **15** and a second group of bores **16**, the first central wall has a first central wall plurality of holes **17**, and the second central wall has a second central wall plurality of bores **18**. The plurality of holes in the peripheral wall **15** and **16** align with the plurality of holes on the central walls **17** and **18** respectively, wherein a quick pin **27** or suitable device can be utilized to secure the ladder or tree stand to the bracket kit assembly. The bores in the walls vary in distance from the base member, so that a wide variety of rungs of varying widths can be mounted to said bracket. Furthermore, such a configuration serves to accommodate a varying number of tree stand/ladder segments.

Referring now to **Fig. 1** and **Fig. 4**, an additional clamp **30** for securing the rungs of a ladder to the bracket is shown. Generally the clamp **30** comprises a base section **31** and two additional parallel wall sections **32** and **33**, wherein each of said parallel wall sections **32** and **33** has a plurality of opposing bores **34** and **35**. In operation the base **31** of this clamp **30** is secured to the base section **12** of the aforementioned bracket kit **10**. The two bases **12** and **31** may be secured together by welding or by an appropriate means that will fixedly attach the bracket **10** and clamp **30**.

Referring now to **Figs. 5, 6a and 6b**, views of the tow bar assembly of the present invention are shown. The tow bar assembly **40** comprises a pair of elongated bar segments **41** and **42**. Each of said elongated bar segments **41** and **42** further comprise a tow end **43a** and **43b** respectively and a distal end **44** and **46** respectively. Attached to 5 each of said distal ends **44** and **46** is a tow bar bracket assembly **47** and **48** respectively, wherein each of said tow bar bracket assemblies **47** and **48** are substantially similar to the bracket **10** in **Fig.1**. The tow bar bracket assemblies **47** and **48** are fixedly attached to the respective distal ends **44** and **46** of the elongated bar segments **41** and **42** by a nut and bolt combination **49**, or by any appropriate means. Furthermore, the tow ends **43a** and 10 **43b** of the respective elongated bar segments **41** and **42** intersect at a junction **50**. While in a particular embodiment of the present invention the elongated bar segments **41** and **42** are formed from a single bar, two separate bars fixedly attached together at a junction **50** is within the scope of the invention as well. Furthermore, the tow ends **43a** and **43b** of the respective elongated bar segments **41** and **42**, pivot relative to each other, thereby allow 15 the tow bar bracket assemblies **47** and **48** of the distal ends **44** and **46** to be separated by an appropriate distance to accommodate a wide variety of tree stand or ladder segments.

Additionally, the assembly further comprises a tow opening **51**, wherein said tow opening **51** is formed via adjacent circular bores in each of said tow ends **43a** and **43b** of the respective elongated bar sections **41** and **42**.

20 A tow bar clamp **52** is attached to each of said elongated tow bars **41** and **42** to further serve to secure the tow bar assembly **40** to the ladder segments. The tow bar clamp **52** is substantially similar to the clamp **30** as illustrated in **Fig. 4**. Furthermore, the tow bar clamps **52** are attached to each of said elongated tow bars **41** and **42** by a nut and

bolt combination 49, or by any appropriate means. In a particular embodiment of the present invention the tow bar clamp 52 are mounted to said elongated bars 41 and 42 whereby the tow bar clamps 52 may rotate relative to said elongated tow bars 41 and 42. As illustrated in **Fig. 4** the clamp comprises a base section 31 and two additional parallel 5 wall sections 32 and 33, wherein each of said parallel wall sections 32 and 33 has a plurality of opposing bores 34 and 35. As in the clamp assembly illustrated in **Fig.1**, a pair of tow bar clamp fastening means 53 are inserted into the respective opposing bores 34 and 35 thereby serving to further secure the ladder segments to the tow bar clamp assemblies 52.

10 Referring now to **Fig. 7** and again to **Fig. 5**, respective side and top views of the tow bar assembly 40 and bracket assembly 10 attached to the tree stand/ladder segments 61, 62 and 63 are shown. In a particular embodiment of the present invention, the tree stand/ladder segments 61, 62 and 63 serve to comprise a hunting tree stand when assembled, however any tree stand/ladder segment or number of tree stand/ladder 15 segments would be within the scope of the invention.

The tree stand/ladder segments 61, 62 and 63 of the present invention further comprise a pair of tree stand/ladder upright segments 65 and a plurality of rungs 64. As illustrated the pair of tow bar clamps, and the clamp portions 30 of the bracket assemblies 10 serve to secure the rungs 64 of the tree stand/ladder segments 61, 62, and 63 to their 20 respective assemblies 40 and 10. More particularly, the rungs 64 are attached to the respective assemblies 40 and 10 by placing the rungs 64 between parallel wall sections 32 and 33 of the clamps 30 and 52 until engaged with the base section 31, or a previously inserted tree stand/ladder segment. When the desired number of tree stand/ladder

segments are in place, the clamps 30 are secured to the ladder rungs 64 by inserting a clamp fastening means 53 through an appropriate opposing pair of said plurality of opposing bores 34 and 35.

The tow bar bracket assemblies 47 and 48 and the bracket assembly 10 are  
5 attached to the tree stand/ladder upright segments 65 by inserting said tree stand/ladder upright segments 65 between the peripheral wall member 11 and the pair of central wall members 13 and 14. More particularly, tree stand/ladder upright segments 65 are attached to the respective assemblies 47, 48 and 10, by placing the tree stand/ladder upright segments 65 between the peripheral wall member 11 and the pair of central wall members  
10 13 and 14 of the respective assemblies 47, 48 and 10, until engaged with the base section 12, or a previously inserted tree stand/ladder segment. When the appropriate number of tree stand/ladder segments are in place, tow bar bracket assemblies 47 and 48 and the bracket assemblies 10 are secured to the tree stand/ladder upright segments 65 by  
15 inserting a clamp fastening means 53 through an appropriate opposing pair of said plurality of opposing bores 34 and 35.

The embodiments described are chosen to provide an illustration of principles of the invention and its practical application to enable thereby one of ordinary skill in the art to utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. Therefore, the foregoing description is to be  
20 considered exemplary, rather than limiting, and the true scope of the invention is that described in the following claims.